

Remarks

The Board of Patent Appeals and Interferences affirmed the Examiners rejection of claims 31-40. Claims 31-40 are pending. Claims 31-40 have been rejected.

The Board of Patent Appeals and Interferences (hereinafter "the Board") held the Examiner's rejection of claim 31-40 proper. In deciding to affirm the Examiner's rejection, the Board defined "an intermetallic compound" to mean "composed of two or more metals or of a metal and a nonmetal." See Decision page 5. By using this definition for "an intermetallic compound" in conjunction with giving the representative claims their broadest, reasonable construction, the Board found that the components of "an intermetallic compound" are not limited only to metals as argued by the appellant in both the Appeal Brief and the Reply Brief. Rather, the Board concluded that the phrase "an intermetallic compound" can have one of two characteristics; either a compound composed of a metal and a nonmetal or a compound composed of two or more metals.

When the Board applied this definition for "an intermetallic compound" to the present case, the Board found that Okamoto teaches a film composed of two metals. Specifically, in col. 5, line 60 Okamoto teaches "a $Ti_xMo_ySi_z$ film 30." The film includes the metals titanium and molybdenum, thus, the Board found that the film taught by Okamoto is an intermetallic compound even though silicon is present.

Applicant has amended independent claims 31, 35, 37, and 38 to read "wherein said intermetallic compound contains no non-metallic materials." Basis is provided in the Specification at page 13, line 15, wherein for one embodiment of the invention it is stated that the intermetallic compound is TiW. Examples of other metals that may be used to form the intermetallic compound are provided at page 14, lines 11-19. The film taught by Okamoto includes silicon, which is a non-metallic material. Thus, although the film taught by Okamoto includes two metals, the film also includes a non-metallic material. Therefore, Okamoto does not teach every limitation recited in claims 31, 35, 37, and 38. Thus, claims 31, 35, 37, and 38 are novel over Okamoto. In addition, Okamoto does not suggest an intermetallic compound containing no non-metallic

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materials. Therefore, claims 31, 35, 37, and 38 are nonobvious over Okamoto. Claims 32-34 depend from claim 31, claim 36 depends from claim 35, and claims 39-40 depend from claim 38. Therefore claims 32-34, 36, and 39-40 are also novel and nonobvious over Okamoto.

In CONCLUSION

Applicants respectfully submit that, in view of the above remarks, the application is now in condition for allowance. Early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,
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APPENDIX

31. (Amended) A local interconnect comprising:

a composite structure comprising a first metal silicide, a second metal silicide and an intermetallic compound comprising metal from said first metal silicide and metal from said second metal silicide, wherein said intermetallic compound contains no non-metallic materials.

35. (Amended) A local interconnect for connecting a first active semiconductor region to a second active semiconductor region on a substrate assembly, said first and second active semiconductor regions being separated by an insulating region, said local interconnect comprising:

a composite structure comprising a first refractory metal silicide, a second refractory metal silicide and an intermetallic compound comprising refractory metal from said first refractory metal silicide and refractory metal from said second refractory metal silicide, said refractory metal from said first refractory metal silicide being different from said refractory metal from said second refractory metal silicide, wherein said intermetallic compound contains no non-metallic materials.

37. (Amended) A semiconductor device comprising:

a substrate assembly having at least one semiconductor layer;
at least one field effect transistor formed in said at least one semiconductor layer, said least one field effect transistor having a source, a drain and a gate; and
a local interconnect for connecting at least one of said source, said drain and said gate to another active area within said substrate assembly, said local interconnect comprising a composite structure comprising a first refractory metal silicide, a second refractory metal silicide and an intermetallic compound comprising refractory metal from said first refractory metal silicide and refractory metal from said second refractory metal silicide, wherein said intermetallic compound contains no non-metallic materials.

38. (Amended) A memory array comprising:

a plurality of memory cells arranged in rows and columns and formed on a substrate assembly having at least one semiconductor layer, each of said plurality of memory cells comprising at least one field effect transistor; and

at least one local interconnect for connecting at least one of a source, a drain and a gate of said at least one field effect transistor in one of said plurality of memory cells to one of an active area within said one memory cell or to one of a source, a drain and a gate of said at least one field effect transistor in another one of said plurality of memory cells, said local interconnect comprising a composite structure comprising a first refractory metal silicide, a second refractory metal silicide and an intermetallic compound comprising refractory metal from said first refractory metal silicide and refractory metal from said second refractory metal silicide, wherein said intermetallic compound contains no non-metallic materials.